

## REMARKS

Applicant notes with appreciation that, in the Office Action of July 5, 2007, claims 2, 4-6, 8 and 9 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, claims 1, 3, 7 and 10 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. Patent Number 6,128,494 (hereinafter “Rozmaryn”) in view of U.S. Patent Number 6,683,913 B1 (hereinafter “Kantschuk”).

In response, Applicant respectfully asserts that the independent claims 1 and 7 are not obvious in view of the cited references of Rozmaryn and Kantschuk, as explained below. In view of the following remarks, Applicant respectfully requests the allowance of the independent claims 1 and 7, as well as the dependent claims 2-6 and 8-10.

In responding to the Office Action, Applicant has amended the specification to delete references to specific claims.

### I. Patentability of Independent Claims 1 and 7

The independent claim 1 was rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Rozmaryn in view of Kantschuk. However, there is no suggestion or motivation to combine the teachings of these cited references to derive the claimed invention. In addition, there is no reasonable expectation of success in combining the teachings of these cited references in the manner suggested in the Office Action. Furthermore, these cited references even when combined do not teach or suggest all of the claim limitations, e.g., the limitation of “*calculating the phase of a result of the subtraction on the basis of an arctangent function,*” as recited in the independent claim 1. Thus, Applicant respectfully asserts that the independent claim 1 is not obvious in view of the cited references of Rozmaryn and Kantschuk.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

A. There is no suggestion or motivation to combine the teachings of Rozmaryn and Kantschuk

There is no suggestion or motivation to combine the teachings of Rozmaryn and Kantschuk to derive the claimed invention as recited in the independent claim 1. The cited reference of Rozmaryn discloses “a system for estimating the signal-to-noise ratio (SNR) and signal-to-interference ratio (SIR) in a cellular communication system, based on the residual phase deviation of a tone signal (SAT or ST) in the voice channel,” which “may be used in hand-off determinations,” as described in column 3, lines 24-37. The cited reference of Kantschuk discloses a receiver with an adaptive bandpass filter that “rapidly locks onto a narrow frequency range of the strongest RF component in the sampled noise and filters out data and wideband noise that are outside this range,” as described in column 2, lines 50-58.

The system of Rozmaryn and the receiver of Kantschuk use different approaches to perform their tasks, which are also different, as noted in the Office Action. The system of Rozmaryn uses a phase differential of sine and cosine correlators of a tone signal to estimate the SNR and SIR, as described in column 4, lines 39-44. In contrast, the receiver of Kantschuk uses phase and quadrature data DCI2 and DCQ2, which are derived from data output ADa by auxiliary channel A/D 45, to generate corrected phase and quadrature outputs, RXI and RXQ, as described in column 8, lines 28-39. Since the system of Rozmaryn and the receiver of Kantschuk

use different signals or data, one of ordinary skill in the art would not have been motivated to combine the teachings of Rozmaryn and Kantschuk.

Furthermore, the adaptive bandpass filter (BPF) described in column 2, lines 55-61, of Kantschuk, which was cited in the Office Action, would not work in the system of Rozmaryn since this adaptive BPF, which is illustrated in Fig. 3, operates on phase and quadrature data inputs, DCI2 and DCQ2. That is, the adaptive BPF of Kantschuk would not work using the phase differential or the phase variance that is produced in the system of Rozmaryn as the only input of the adaptive BPF of Kantschuk. Thus, there is no suggestion or motivation to combine the teachings of Rozmaryn and Kantschuk to derive the claimed invention as recited in the independent claim 1.

**B. There is no reasonable expectation of success in combining the teachings of Rozmaryn and Kantschuk**

There is no reasonable expectation of success in combining the teachings of Rozmaryn and Kantschuk to derive the claimed invention as recited in the independent claim 1. As explained above, the adaptive BPF of Kantschuk requires two input signals, the phase and quadrature data inputs, DCI2 and DCQ2. The adaptive BPF of Kantschuk would not work using the phase differential or the phase variance that is produced in the system of Rozmaryn as the only input of the adaptive BPF of Kantschuk. Thus, there is no reasonable expectation of success in combining the teachings of Rozmaryn and Kantschuk, as suggested in the Office Action.

**C. The cited references of Rozmaryn and Kantschuk even when combined do not teach or suggest all of the claimed limitations**

The cited references of Rozmaryn and Kantschuk even when combined do not teach or suggest all of the claimed limitations. The independent claim 1 recites in part “*subtracting a reference signal (ref\_in) from a received input signal (in)*” and “*calculating the phase of a result of the subtraction on the basis of an arctangent function.*” The Office Action on page 2 states that the cited reference of Rozmaryn

teaches “subtracting a reference signal from a received input signal (Column 4, Lines 46-48; Rozmaryn)” and “calculating the phase of a result of the subtraction on the bases of an arctangent function (column 4, Lines 50-52; Rozmaryn).” The cited passage of Rozmaryn with respect to the “*subtracting*” element refers to Fig. 3, which is a detailed illustration of the phase unwrap and differencer 34. Thus, the described “subtraction” in Rozmaryn is performed at the phase unwrap and differencer 34. As shown in Fig. 2 of Rozmaryn, the phase unwrap and differencer 34 operates on the output of the four-quadrant arctangent (ATAN2) operator 32. Thus, in the system of Rozmaryn, the arctangent function is performed before the “subtraction”. However, in the claimed invention as recited in the independent claim 1, the “*subtracting*” is preformed before the “*calculating*” that involves “*an arctangent function*.” Therefore, the cited references of Rozmaryn and Kantschuk even when combined do not teach or suggest the limitation of “*calculating the phase of a result of the subtraction on the basis of an arctangent function*,” as recited in the independent claim 1.

Since there is neither suggestion or motivation to combine the teachings of the cited references of Rozmaryn and Kantschuk nor reasonable expectation of success in combining these cited references, and these cited references even when combined do not disclose all of the claim limitations, Applicant respectfully asserts that the independent claim 1 is not obvious in view of these references. As such, Applicant requests that the independent claim 1 be allowed.

The above remarks are also applicable to the independent claim 7, which recites limitations similar to the limitations of the independent claim 1. Thus, Applicant respectfully asserts that the independent claim 7 is also not obvious in view of the cited references of Rozmaryn and Kantschuk, and requests that the independent claim 7 be allowed as well.

## II. Patentability of Dependent Claims 2-6 and 8-10

Each of the dependent claims 2-6 and 8-10 depends on one of the independent claims 1 and 7. As such, these dependent claims include all the limitations of their

respective base claims. Therefore, Applicant submits that these dependent claims are allowable for at least the same reasons as their respective base claims.

Applicant respectfully requests reconsideration of the claims in view of the remarks made herein. A notice of allowance is earnestly solicited.

Respectfully submitted,  
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